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March 18, 2004

BY ELECTRONIC FILING

Marlene Dortch, Secretary  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

Re: *Ex Parte* Submission, WT Docket No. 02-55

Dear Ms. Dortch:

Nextel Communications, Inc. ("Nextel") is pleased to submit the attached expert report for consideration by the Commission in WT Docket No. 02-55, *Improving Public Safety Communications in the 800 MHz Band*.

The report, entitled "Economic Analysis of the Kane Reece Spectrum Valuation," is by Dr. Gregory L. Rosston, Deputy Director of the Stanford Institute for Economic Policy Research at Stanford University. Dr. Rosston formerly served as Deputy Chief Economist of the Commission, as Acting Chief Economist of the Common Carrier Bureau, and as a senior economist in the Office of Plans and Policy. In these positions, Dr. Rosston has had substantial involvement with FCC spectrum policy and auction-related issues.

Dr. Rosston's report provides an economic evaluation of spectrum valuation reports prepared by Kane Reece Associates, Inc. ("Kane Reece") on behalf of Verizon Wireless. These reports, which have been filed in the record of this proceeding, purport to estimate the value of the spectrum exchange proposed by the Consensus Plan and argue that Nextel would receive a "windfall" under the Plan.

Dr. Rosston states in his report that Kane Reece's "conclusions are not based on sound economics and provide no basis to determine the relative value of different spectrum positions or to validate any 'windfall' claims." As described in Dr. Rosston's report, Kane Reece's analysis ignores economic cost considerations that have a substantial influence on the substitutability of spectrum technologies and thus spectrum value. Dr. Rosston also shows that, by using firm-level rather than industry-wide data, Kane Reece's methodology yields wildly varying and irreconcilable spectrum valuations for different wireless carriers operating on comparable spectrum blocks. Dr. Rosston's

analysis demonstrates that the Kane Reece report is so fatally flawed as to be of no value in this proceeding.

Nextel has forwarded a copy of this filing to the FCC personnel listed below. Accordingly, pursuant to section 1.1206 of the Commission's rules, Nextel requests that a copy of this submission be placed in WT Docket No. 02-55.

Respectfully submitted,

/s/ Lawrence R. Krevor

Lawrence R. Krevor

Vice President – Government Affairs

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# **Economic Analysis of the Kane Reece Spectrum Valuation**

**Gregory L. Rosston**

**WT Docket 02-55**

**March 2004**

My name is Gregory L. Rosston. I am Deputy Director of the Stanford Institute for Economic Policy Research at Stanford University. I am also a Lecturer in the Economics Department at Stanford University. I received my Ph.D. and M.A. in economics from Stanford University, and my A.B. with Honors in economics from the University of California, Berkeley. My specialties in economics are industrial organization and regulation with an emphasis on telecommunications. I served at the Federal Communications Commission for three and one-half years as the Deputy Chief Economist of the Commission, as Acting Chief Economist of the Common Carrier Bureau, and as a senior economist in the Office of Plans and Policy. In these positions, I had significant involvement with the Commission's spectrum policy and auction-related issues. I have been the author or co-author of a number of articles relating to telecommunications competition policy and spectrum policy. My Ph. D. dissertation studied the effects of FCC policy on the land mobile radio industry. I have also co-edited two books on telecommunications. I have co-hosted three conferences on implementation of package bidding with Evan Kwerel of the Federal Communications Commission.

## I. Introduction

I have been asked by Nextel Communications, Inc. (“Nextel”) to provide an economic evaluation of reports prepared by Kane Reece Associates, Inc. (“Kane Reece”) on behalf of Verizon Wireless.<sup>1</sup> In these reports, Kane Reece attempts to place a monetary value on the spectrum exchange proposed by the Consensus Plan in the FCC’s pending proceeding regarding interference to public safety systems in the 800 MHz band.<sup>2</sup> Based on its spectrum valuations, Kane Reece argues that Nextel would receive a windfall under the Consensus Plan.

My report does not attempt to value spectrum.<sup>3</sup> Instead, it shows that the Kane Reece study is unreliable and yields wildly varying estimates for spectrum value across companies, thus providing no reliable evidence of a windfall for Nextel. In fact, applying Kane Reece’s firm-level numbers to the Kane Reece methodology can even show that Nextel’s *current* spectrum holdings are among the most valuable in the industry, and far more valuable than the Kane Reece implied license value for firms like Sprint PCS and T-Mobile that hold 1.9 GHz licenses only. Although Kane Reece uses its methodology to argue that Nextel would receive a windfall, the same methodology can be used to

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<sup>1</sup> See Letter from John Scott, Verizon Wireless, to Marlene Dortch, FCC Secretary, WT Docket No. 02-55 (Feb. 10, 2004); Letter from John Scott, Verizon Wireless, to Marlene Dortch, FCC Secretary, WT Docket No. 02-55 (Oct. 27, 2003).

<sup>2</sup> Improving Public Safety Communications in the 800 MHz Band; Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels, Notice of Proposed Rulemaking, 17 FCC Rcd 4873 (2002).

<sup>3</sup> The best means to value any asset, including spectrum, is through a market transaction.

demonstrate that the Consensus Plan would cost Nextel more than it gains. A methodology that yields such irreconcilable results is fatally flawed.

This report focuses on the two major flaws that make the Kane Reece report useless for the Commission's consideration of possible windfalls from the Consensus Plan.<sup>4</sup> First, Kane Reece relies on *technical* differences rather than *economic* differences as the lynchpin for its windfall claim. However, the ability to employ a particular technology is only one component in determining the relative value of different spectrum assignments to a wireless carrier – economic considerations, such as transition costs to a different technology, also are important. Because it does not account for these costs, the Kane Reece study provides no evidence of any windfall.

Even if one were to accept this error, the other portion of the Kane Reece methodology finds that Nextel's 800 MHz spectrum is worth substantially *more* than 1.9 GHz spectrum when using data at the firm level, rather than using wireless industry averages, as Kane Reece does. On a firm level basis, the Kane Reece study shows wildly divergent values for what it claims are similar assets -- spectrum licenses. These divergent values indicate a serious error in the methodology. *While the Kane Reece analysis contains other problems, these two factors alone show that its conclusions are not based on sound economics and provide no basis to determine the relative value of different spectrum positions or to validate any "windfall" claims.*

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<sup>4</sup> Kane Reece's presentation contains a number of other questionable assumptions that are beyond the scope of this analysis

## **II. The Costs of New Technologies and Path Dependence**

Kane Reece employs a purely technical analysis to conclude that contiguous spectrum is substantially (by a factor of four) more valuable to Nextel than the combination of contiguous and non-contiguous spectrum it uses today.<sup>5</sup> By assuming that the 1.9 GHz spectrum band is as valuable as the 800 MHz band and that contiguous spectrum is more valuable to Nextel than non-contiguous spectrum, the Kane Reece analysis contends that the Consensus Plan would bestow a large windfall upon Nextel.<sup>6</sup>

Kane Reece relies on a technological analysis, comparing use of an allegedly more spectrally efficient technology, CDMA, and an allegedly less spectrally efficient technology, iDEN, while ignoring economic considerations that affect the value of the spectrum to a given company, such as costs of different technologies and costs of transitioning to a different technology. The premium for contiguous spectrum depends on its expected use, the costs of implementing a new system needing contiguous spectrum, the transition costs, and the different services capable of being provided. Technical differences in capacity are only a small part of the true difference in valuation.

Kane Reece claims that contiguous spectrum is more valuable because it permits the use of CDMA, which Kane Reece asserts is a superior technology. But these claims are undermined by the fact that significant numbers of wireless carriers – including carriers that hold contiguous spectrum – do not use CDMA technology. There are at least

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<sup>5</sup> This report makes no effort to evaluate technical claims about spectral efficiency.

<sup>6</sup> As noted above, any attempt to value spectrum absent a market mechanism necessarily involves assumptions that may not hold; to the extent those assumptions do not hold, the analysis needs to be viewed skeptically.

two possible reasons for this, both of which are relevant to estimating any possible windfall. First, Nextel's current investments in iDEN technology provide a service that its customers value. Nextel's customers have higher than average revenue per user and lower churn rates than the industry average. This indicates that Nextel customers view its product, iDEN service, to be least as good as, or better than, other wireless services. Perhaps Nextel and its customers do not share the view that CDMA is so much better than iDEN, especially given Nextel's substantial investments targeted at maximizing the value of non-contiguous spectrum.<sup>7</sup> Second, even if CDMA is a superior technology, it is beneficial to switch to it only if the benefits exceed the costs. The subsections below explain these reasons more fully.

**A. Incremental Value of Contiguous Spectrum is Likely to be Low to Nextel Because of its Substantial Investment in iDEN**

Nextel is the nation's sixth largest wireless carrier. It worked with Motorola for nearly a decade to optimize iDEN technology for use with its non-contiguous and contiguous spectrum holdings. As a result, Nextel's iDEN network does not require contiguous spectrum. In fact, it is my understanding that Nextel firmly believes that iDEN technology is optimized to work nearly as well on non-contiguous as on contiguous spectrum. The incremental value of contiguous spectrum to Nextel is, therefore, probably relatively small.

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<sup>7</sup> Nextel and Motorola developed iDEN as an integrated offering including Direct Connect® walkie-talkie service. Industry observers believe that Nextel provides a better walkie-talkie product than those that have been brought to market to date by other carriers using contiguous spectrum. I elaborate on this point further in Section II.C.

Nextel is not alone in using technology to straddle non-contiguous spectrum. For example, cellular companies have two separate bands of spectrum in the 800 MHz band, and Verizon, AT&T Wireless and Cingular all have multiple spectrum blocks at 800 MHz and 1.9 GHz for cellular and PCS services. Advances in technology have minimized the inefficiencies arising from the non-contiguous nature of these different assignments, just as technology has allowed Nextel to minimize the disadvantage of non-contiguous spectrum in the 800 MHz band.

**B. Technology and Transition Costs Are Critical to Assessing Any Claims of “Windfall”**

There have been a number of technology transitions in the wireless industry – from analog to digital, and now from 2G to 3G. But any of the so-called “windfall” gains that Nextel would allegedly get from moving from non-contiguous spectrum to more contiguous spectrum blocks would only arise should Nextel find it advantageous to switch from its current iDEN system to a technology that requires contiguous spectrum. To evaluate the magnitude of such a windfall requires much more than Kane Reece’s one-dimensional methodology, which simply employs a technical analysis comparing the potential carrying capacity of different technologies. As explained below, such a narrow analysis fails to take into account the cost of a new technology and the cost of transitioning to the new technology.

**1. *Costs of New Technologies and Their Incremental Efficiency Improvements***

If carrying capacity were the only consideration in technology choice, and if CDMA has the highest capacity, then all carriers would have adopted it. But other considerations also factor into technology choice, including the costs of different



technologies. A technology that can provide more capacity than another technology, while superior from a purely technological point of view, may have little cost advantage if the equipment necessary to use it (e.g., cell sites and handsets) turns out to be much more expensive than the old equipment. In fact, cost and other considerations have led different wireless carriers to adopt different technologies; not all have adopted CDMA technology, and none has fully adopted and implemented CDMA 1xRTT yet.

## *2. Path Dependence and Switching Costs*

A second consideration is the cost of transition to a new technology. A switch in technology makes economic sense only if the present value of the benefits of the new technology exceeds the cost of switching to it. The lesson is relevant here because the costs for Nextel to transition to a new technology are likely to be too high in the near term to make it worthwhile, even if a different technology is superior.

In 1994, for example, Nextel had an iDEN subscriber base of less than 25,000 customers limited to parts of California. Given its relatively small network at the time, it might have been cost-effective for Nextel to switch to a different technology, such as to CDMA or GSM, with minimal disruption or cost. Since 1994, however, Nextel has invested nearly \$10 billion in the iDEN network. There are now more than 13 million Nextel iDEN subscribers using more than 17,000 cell sites with coverage of 293 of the top 300 markets in the country. Nextel's iDEN system is now a mature system with a large base of loyal customers. The benefits of replicating this investment for a different technology in the near term – even if it is superior in some respects – would have to be very high to exceed the cost.

Consider a new technology that promises a 40% gain in capacity with costs identical to the technology currently in use. The service provider has a system in place that works and provides service to its customers. To achieve the 40% increase in capacity, it would have to reinvest in the network, provide handsets to all of its customers, and operate two networks in parallel during the transition period. Again, if these costs were sufficiently high, the provider would not switch to the new technology. And even if it did switch, the new value of the spectrum would not be 40% higher than the old spectrum, but instead would also reflect the costs of the transition, so the premium would be lower than 40%.

In other words, a purely technical approach is demonstrably insufficient to measure the economic value of different spectrum characteristics. At best, such an approach provides a maximum *technical* valuation difference, not the actual *economic* difference, unless there were no cost differences and no transition costs, which is unlikely. To measure the increase in value from contiguous spectrum accurately, one would have to consider the cost differences in technology implementation, the total transition costs, the discount of the time to the transition and the probability of actually undertaking the transition. The Kane Reece analysis fails to take into account any of these important economic factors.

All carriers face such economic considerations, including CDMA carriers who are considering upgrading to CDMA-2000. Because the transition is costly, none has upgraded an entire system at once. Technology transition requires time, money and customer retention effort. All of these are important to the bottom line and hence to an

assessment of the relative value of spectrum that is capable of providing more technically efficient service.

Thus, Kane Reece's conclusion that contiguous spectrum at 800 MHz is worth four times as much to Nextel as non-contiguous spectrum has no economic basis. Kane Reece's windfall argument rests directly on this unsubstantiated discount for non-contiguous spectrum. Without this unsupported assumption, its windfall assertion disappears.

**C. A Purely Technical Capacity Analysis Ignores Possible Quality Differences.**

The Commission has generally avoided mandating minimal technical efficiency standards for wireless services. This is because technical efficiency is potentially very different from economic efficiency. It is possible that one technology could be more technically efficient, but provide a much lower value service to customers. For example, while Kane Reece claims that iDEN is a technically inferior technology in terms of its ability simply to carry traffic, it makes no investigation into the value of the services provided by iDEN to customers. One obvious feature of iDEN technology is the push-to-talk feature that other carriers are attempting to replicate. Even assuming the iDEN solution is technically inferior in some fashion, it may nonetheless provide a higher quality product to customers due to this and other service features. Just as a BMW may get fewer miles per gallon than a Hyundai (and therefore in one measure be less technically efficient), the BMW driving experience may be more highly valued than that of the gas-efficient Hyundai. Nextel's higher revenues per customer and low churn rate suggest that the iDEN solution, like the BMW, is more valuable than competing technologies even if it might be technically less efficient in some ways.

It is important to understand the value of services that can be provided by a technology in addition to all of the costs outlined above. Ignoring any of these considerations means that Kane Reece's simple technical comparison does not reflect a true difference in spectrum values.

### **III. The Kane Reece Analysis Actually Implies that 800 MHz Spectrum is Worth More Than 1.9 GHz Spectrum**

As discussed above, Kane Reece uses a limited, non-economic approach to valuing spectrum licenses held by U.S. wireless carriers. Based on this approach, it estimates that the "fair market value" of all U.S. Wireless industry spectrum licenses is \$1.82 per MHz-pop. Using this price/MHz-pop figure, Kane Reece estimates the value of the replacement spectrum Nextel would receive, and claims it is worth more than the spectrum Nextel would contribute.

The analysis that follows is not meant to endorse the Kane Reece methodology. Instead, it is meant to show how the Kane Reece methodology applied to data for individual companies, rather than the aggregate wireless industry, yields completely different results regarding the value of the spectrum that Nextel possesses and would be willing to exchange as part of a total solution of the public safety interference problem in the 800 MHz band.

Kane Reece takes the business enterprise value of the wireless industry as a whole (\$210 billion) and subtracts the net property, plant and equipment (\$81.1 billion) and the value of the customer relationships (\$47.6 billion) to conclude that the wireless industry's spectrum license holdings are worth approximately \$82 billion. Its analysis then converts this figure to a spectrum value expressed in price/MHz-pop (\$1.82). Kane Reece uses

this methodology to support its claim that Nextel would receive a windfall under the Consensus Plan. However, this methodology can also show that Nextel would suffer a net *loss of value* in the spectrum exchange proposed by the Consensus Plan because of the high value the methodology calculates for 800 MHz spectrum, as compared to 1.9 GHz spectrum. The point here is not to claim that there is necessarily a net cost of the Consensus Plan to Nextel; rather, the point is that, because the Kane Reece methodology can support entirely inconsistent conclusions, it is too flawed to be of any use whatsoever.

If the Kane Reece methodology can be used to estimate the value of wireless industry spectrum in the aggregate, then it logically can also be used to estimate the value of the spectrum holdings of specific companies within the industry. Consider the results of applying Kane Reece's methodology to Nextel, Sprint PCS, and T-Mobile, individually. Nextel holds licenses in the 700, 800 and 900 MHz bands. Sprint PCS and T-Mobile hold licenses exclusively in the 1.9 GHz PCS band.

Applying the Kane Reece methodology to these companies individually, rather than to the industry as a whole, provides startlingly different results. Exhibit A attached to this report applies the Kane Reece methodology to Nextel using data from Exhibit E of the Kane Reece report.<sup>8</sup> Using exactly the same analysis and data Kane Reece used, the first column of Exhibit A (titled "Nextel") subtracts the value of Nextel's non-spectrum assets (property, plant and equipment and customer relationship assets) from Nextel's net enterprise value to derive an estimate of the value of Nextel's 700 MHz, 800 MHz, and

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<sup>8</sup> See Letter from John Scott, Verizon Wireless, to Marlene Dortch, FCC Secretary, WT Docket No. 02-55 (Oct. 27, 2003).

900 MHz spectrum holdings. The second and third “Nextel” columns in Exhibit A subtract out estimates of the value of Nextel’s 700 MHz and 900 MHz spectrum to focus on the value of Nextel’s 800 MHz licenses. The second column uses Kane Reece’s estimates of the value of the 700 MHz and 900 MHz licenses; the third column uses Nextel’s estimated value of for these bands. This approach finds a “Kane Reece” value of \$2.53-\$2.90 per MHz-pop for Nextel’s 800 MHz licenses -- substantially higher than the \$1.82 per MHz-pop that Kane Reece attributes to the value of spectrum for the wireless industry as a whole.

Exhibit A also calculates a price per MHz-pop from the Kane Reece methodology for Sprint PCS and T-Mobile, arriving at a “Kane Reece” license value of \$1.36 per MHz-pop for Sprint PCS and \$0.41 per MHz-pop for T-Mobile, respectively, substantially lower than the number Kane Reece attributed to the industry as a whole. What explains the difference between these estimates and the Nextel estimates? One possibility is that 800 MHz spectrum is in fact more valuable than 1.9 GHz spectrum. If so, then attempting to calculate a spectrum valuation for the entire commercial wireless industry combined, including spectrum in both the 800 MHz band and the 1.9 GHz band, is like saying that Wilt Chamberlain and his teammate Ted Luxkenbill averaged 50 points each on the night in 1962 when their team beat the New York Knicks – and neglecting to mention that Chamberlain scored all 100 of their combined points and set the NBA record for most points scored by a player in a single game.<sup>9</sup> The point is that trying to

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<sup>9</sup> See < <http://nbahoopsonline.com/History/wilts100.html> >.

develop a combined measure of two spectrum bands with different value characteristics produces an inaccurate measure of the value of both bands.

Dr. Kostas Liopiros, in an earlier submission in this proceeding, detailed some reasons why spectrum at 800 MHz may be more attractive than spectrum at 1.9 GHz, including better propagation characteristics requiring fewer cell sites to obtain the same coverage.<sup>10</sup> Sprint PCS and T-Mobile differ from Nextel in that they own spectrum exclusively at 1.9 GHz. Part of the divergence between the Nextel license valuation and the Sprint PCS and T-Mobile license valuations may be due to the limitations of the Kane Reece methodology and part may be due to real differences in the license values of 800 MHz and 1.9 GHz channels. Given current information, it is impossible to determine how much of the difference is accounted for by methodology and how much by real differences in spectrum value. Regardless of how much of the discrepancy results from each possible cause, Kane Reece's methodology, and its combination of 800 MHz and 1.9 GHz spectrum into a single valuation, provides a distorted measure of the value of a carrier's spectrum holdings or prospective holdings in either band.

Notwithstanding the above, if Kane Reece's methodology were assumed to be valid, then Nextel's 18.5 MHz of partially contiguous (10 MHz) and partially non-contiguous 800 MHz spectrum (8.5 MHz) is worth about twice as much, on a price/MHz-pop basis, as Sprint PCS's contiguous 1.9 GHz spectrum, and six to seven times as much as the T-Mobile's 1.9 GHz spectrum. The Kane Reece methodology implies that

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<sup>10</sup> Letter from Lawrence R. Krevor, Nextel, to Marlene Dortch, FCC Secretary, WT Docket No. 02-55 (Nov. 20, 2003) (submitting Sun Fire Group Study, "The Consensus Plan: Promoting the Public Interest – A Valuation Study").

Nextel's spectrum (including its 700, 800 and 900 MHz spectrum holdings) averages out to be worth more than five times the value of T-Mobile's 1.9 GHz spectrum on a per MHz-pop basis.

Other indications about the unreliability of the Kane Reece methodology and its implementation come from the wildly divergent values for the licenses held by other companies in the Kane Reece sample. For example, Kane Reece values AT&T Wireless's spectrum at \$0.88 and Verizon Wireless's spectrum at \$3.74 per MHz-pop. Across all companies in its report, the Kane Reece values for spectrum vary by a factor of nearly nine. These wide variations in spectrum values further demonstrate that Kane Reece's methodology is unreliable.

Again, our purpose here is not to reach a definitive spectrum valuation. Instead, the point is to identify and explain the flaws in Kane Reece's wireless spectrum valuation methodology that render its submissions worthless for spectrum valuation use in this proceeding.

#### **IV. Conclusion**

Kane Reece's spectrum valuation presentation provides no basis for any windfall conclusion. Its analysis does not accord with sound economic principles requiring analysis of costs as well as benefits. Its methodology shows that 800 MHz spectrum is much more valuable than 1.9 GHz spectrum, thus completely undermining its spectrum valuation and windfall argument.

The premium for contiguous spectrum depends on its expected use, the costs of implementing a new system needing contiguous spectrum, the transition costs, and the



different services capable of being provided. Technical differences in capacity are only a small part of the true difference in valuation. Since the Kane Reece windfall conclusions rest solely on technical differences, there is no basis to its argument that the Consensus Plan would give Nextel a valuation windfall.

Applying the Kane Reece methodology to the firm-level data Kane Reece provides also shows that Nextel's 800 MHz spectrum is highly valuable compared to spectrum in the PCS band. Using data for 800 MHz and 1.9 GHz spectrum separately shows that either Kane Reece's methodology does not provide a sound basis for valuing spectrum, or that the 800 MHz spectrum is vastly undervalued in the aggregate Kane Reece calculation.

The bottom line is clear – the Kane Reece methodology is deficient in at least two ways that completely invalidate its conclusions.

## Exhibit A

### Kane Reece Methodology Applied to Specific Wireless Companies

		Nextel (Kane Reece Values for 700 and 900 MHz)	Nextel (NXTL Values for 700 and 900 MHz)	Sprint PCS	T-Mobile	Verizon Wireless	Cingular	ATT	Nextel Partners
Net Wireless Enterprise Value (\$mil)	26,603	26,603	26,603	24,533	9,800	56,150	26,550	32,126	3,511
less Net PP&E	8,918	8,918	8,918	11,897	4,488	17,073	11,144	16,263	1,000
less customer relationship asset (CPGA*subs)	4,712	4,712	4,712	5,210	3,133	10,625	8,989	7,864	393
less 700 MHz Spectrum		31	1,640						
less 900 MHz Spectrum		331	350						
License value indication	12,973	12,611	10,983	7,426	2,179	28,452	6,417	7,999	2,118
Avg MHz for licensed pop	26	18.5	18.5	25.6	24.3	29.0	22.9	33.0	15.0
Licensed pops (000)	234,851	234,851	234,851	213,265	218,000	262,000	219,000	274,000	52,000
MHz*Pop (millions)	6,106	4,345	4,345	5,460	5,297	7,598	5,015	9,042	780
<b>License value per Mhz*POP</b>	<b>\$2.12</b>	<b>\$2.90</b>	<b>\$2.53</b>	<b>\$1.36</b>	<b>\$0.41</b>	<b>\$3.74</b>	<b>\$1.28</b>	<b>\$0.88</b>	<b>\$2.72</b>

Sources: 1. Kane Reece "Determination of the Fair Market Value of the Certain Portions of FCC licensed Wireless Spectrum Proposed for Realignment by Nextel Communications, Inc. Under FCC WT Docket No. 02-55 As of December 31, 2002.", Exhibit E and p-iv.

Attached to Letter from John Scott, Verizon Wireless, to Marlene Dortch, FCC Secretary, WT Docket No. 02-55 (Oct. 27, 2003).

2. Letter from Regina Keeney, Counsel to Nextel, to Marlene Dortch, WT Docket No. 02-55, Attachment 3 (March 15, 2004). "What Windfall"